

SPACE EXPLORATION SYMPOSIUM (A3)
Moon Exploration – Poster session (2D)

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STUDY OF A LUNAR SATELLITE NAVIGATION SYSTEM

Abstract

Recently, the interest for returning to the Moon, after more than 30 years since the Apollo Program succeeded in its goal, has increased significantly. There are many reasons why the return to the Moon has become appealing, and most of them are related to the great opportunities that our satellite offers to the scientific community and to the future exploration of Mars. Thanks to the experience gained with the International Space Station concerning how to maintain a permanent base in space, an enduring lunar scientific base is the logical next step. In such a context, a lunar global satellite navigation system would be needed to provide accurate positional information to operators on the surface. This study constitutes a preliminary analysis of the objectives, the requirements, the constraints of such a system. The study also focuses on mission analysis aspects such as the choice of the most suitable constellation to accomplish the mission objectives and specific issues concerning the design of the spacecraft subsystems. The outcome is a set of indications concerning the implications inherent in the definition and implementation of an infrastructure for global precise positioning on the lunar surface.